# Vanilla Training Manual for Colombia

Nancy Laws

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Colombia Alternative Development Project

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## Choice of Site for the Farm

The best zone for vanilla culture is a well-wooded region indicating that the soil is rich. The parcel to be cultivated should have a slight incline, a slope to the land that indicates that it is naturally drained.

## Preparation of the land

The land should be cleared using ax and machete and chain saw if necessary. The fruit trees, such as coconuts, bananas and avocados should be kept. The residual branches from the clearing of the land should be used for organic material for compost. They should never be burned.

## The planting of stakes

After clearing, stakes should be positioned 2 meters apart on the lines and 2.5 meters between the rows to give 2000 tutors and vanilla plants per hectare.. These will indicate where the tutor trees will be planted. The rest of the vegetation and ground cover should be cut and piled to dry in long rows between the lines of stakes.

## Protection of the steeper hillsides

Some of the hillsides will have too much inclination. Before they are planted, a horizontal trench should be dug along the top of the hill, or at the top line of the parcel where the vanilla will be planted. This trench will collect the water that might trickle or run down the hillside from above. The upper side of the trench should be planted in Flemingea to help stop erosion from carrying off the soil of the hillside slope.

## The different types of tutor trees

Gliricidia sepium is a good tutor tree. It resists wind. It can be planted any time of the year. It produces abundant small leafed vegetation that can be cut periodically and used for compost. The recommendations for pruning must be followed.

Other tutor trees may be preferred for areas with more sunlight and less cloud cover. Pignon d'Inde is a tree with a large leaf and gives more shade, though its leaves are less adequate for humus, and it can be planted only during certain months of the year.

## Preparation of the tutor trees.

Straight branches must be selected. These branches should be cut 1.5 meters long and be at least 5 cm. in diameter. The bottom, thicker end should be cut into a wedge shape with a machete. These stakes, if they are gliricidia, should not be left out in the sun, as too much sun exposure gives them sunburn and they do not grow as well.

Making holes for the tutor trees

With a square ended shovel, dig holes 20 cm in diameter and 30 cm deep next to the stakes that indicate the matrix where the tutors and vanilla will be planted. Add some fresh soil. The bottom of the tutor stake should not rest on the bottom of the hole, but rest on about 10 cm. of loose soil. 20 cm of the tutor stake will below the soil surface.

The drainage

In heavy clay soil or fairly flat land there will be a need for furrows or drains to carry the water away from the plants. On steeper hillsides, drains must also be dug to carry the excessive rainwater down the hill to join other deeper trenches and thus control erosion. The little drains should be about 20 cm across and 20 centimeters deep and should be at a minimum between every other row of trees. The soil removed from the trenches should be put at the base of the newly planted tutor trees to form a mound of raised earth at the base of each tutor stake. Small drains should be connected to drains that are 50 cm deep and then later to drains 80 cms deep until a pattern has been created to drain the whole vanilla plot.

Mulching the base of the tutor tree

Put the decomposing vegetation and chopped forest debris around the base of the tutor trees over the mounds of soil. If the material is larger, and will be more difficult to decompose or take a longer time, it can be put down the center of every other row. There the vegetation will eventually form compost. If the branches are put down the middle of the aisle, this material will later be put at the base of the tutors to provide humidity in which the vanilla vines will later be planted.

Retaining fences

If the hillside slope is steep, the lines of tutors should not be straight but rather contoured. Terracing of the soil may be recommended at some of the steeper parts. In addition, little fences, about 30 cm high can be built just below each vanilla tutor, and tree branches placed on the uphill side of these little fences, just below the tutor. Space between these little fence barriers should remain at the points where the drains carry off the water between the tutors.

Forming the decomposition piles

Between the aisles, the fresh cut grass and other vegetation and decomposing Flemingea (a leguminous bush used as a windbreak and to hold the soil) and stylosanthes ( a ground cover) will be piled and left to decompose before adding to the base of the tutor to cover the roots of the vanilla plant.

Cutting back the tutor trees

Two months after planting, the tutor trees will have put down roots and will have sprouted many branches. A big knife is used to cut off the young srputs on the sides of these young trees. The objective is to save and give strength to the two branches about 1.2 meters above the soil.

Cutting back the tutor trees—the follow-up

Eight months after planting, the second pruning takes place, and then again at eleven months. In this third pruning, secondary branches perpendicular to the two main branches at the top of the tree will be allowed to grow on the main branches. These will give the tutor tree a round tree form.

Planting Flemingea and stylosanthes

The Flemingea seed is sown in lines between every other row. The seeds are planted 50-60 cm apart between the tutor lines. An intercrop (an annual like corn) can be planted down the side of the drains. If both Flemingea and corn are planted in the say row, the Flemingea will be shaded by the corn when it is small. In the rest of the unplanted area between the rows, shallow furrows should be made and a ground cover, stylosanthes, should be planted in rows at the rate of 2-3 kg per hectare. This planting should be done after the raining season has begun.

Flemingia—a plant for making humus

The Flemingea is a woody bush that is originally from Brazil. It is leguminous and fast growing. It blooms and sets fruit at about 2-3 meters high. The planting is done in a furrow at the rate of 6 kg per hectare. This Fleminguea will be destined to create bands of temporary shade for the vanilla plants soon to be established at the base of the tutor trees, nd later for humus in the vanilla plantation.

Stylosanthes as a ground cover.

Stylosanthes is a low leguminous ground cover. It will hold the soil and crowd out the grass which is a less desirable ground cover. Eventually it will carpet the whole vanilla plot, all except for the drains which must be kept open by spading every few months.

The preparation of vanilla vine sections for planting

Older vanilla vines that are healthy serve as mother plants, providing vine sections which will be cut and established on tutors in new plantations. Sections of vine 1.5 meters long and 10 mm in diameter should b e broken off of the big plant. These will be young, non-vanilla bearing sections, a part of the big mother plant that is very vigorous and green. These sections should be rolled into a circle to facility their transport to the shade of the porch of a house for aging for a period of a week to two prior to planting in the new vanillery.

Transport of the vanilla vine sections

Vine sections should be treated very carefully. The easiest way to transport them is to coil them in a circle and suspend them from a 2 ñeter long pole that is carried on the shoulder. The pole should be large in diameter, at least 5-8 cm, so that the vanilla vine sections do not break. Bamboo is very good. Ten or fifteen coils of vine section can be hung from the pole, a half dozen in front and a half dozen in back and the middle of the pole balanced on the shoulder of the person carrying them.

Preparation of the vine sections

The vine sections should be re-cut about 1 cm from the thicker end. This will be the bottom of the new vanilla. From the bottom end upwards, 4-5 leaves should be removed, and the little aerial roots cut off to 0.5 cm in length. These little aerial roots will re-grow again, fresh and strong, ready to attach to the new support tree.

Hardening off of the vine sections.

The vine sections should be suspended from a fence railing or banister on the porch of the house in the shade for 7-15 days until they form scar tissue over the cut ends and become more supple and malleable. Now they will not break when unrolled and attached to the tutor tree.

Tying the vanilla vine sections to the tutor tree

The vine sections, now hardened off and ready to plant, are again coiled and suspended from the 2 meter long carrying pole and balanced over the shoulder and taken into the new field. The vanilla vine pieces are tied to the tutor with raffia or cellophane string. The thicker end, without the leaves, should point downwards. The base should be in the humus. The top, if it is long enough should be draped over one of the main two branches of the tutor tree. If it is not long enough it should just be tied at the top. The ties should be loose but still fix the vine to the tutor support.

Observing the vine section grow.

Within a month the vanilla will have put down roots and the top end will become a shoot climbing upwards. When they reach the top, if the vine was not long enough already, detach any aerial roots up at the top that are impending moving the top of the shoot, and bend it over a branch of the tutor and leave it dangling. It will then grow downwards.

Curling the vine back upwards again

Before the dangling vine is long enough to reach the ground, if it is strong, it generally starts to curve upwards again.

If the vine is poorly nourished it may be small in diameter and weak it will hang downwards and eventually reach the ground. When the dangling vine reaches the ground, unhook any bottom aerial roots that cling to the bottom of the tutor and cut them to 0.5 cm. With a sharp knife clip off the leaves that are on that part of the vine near the soil and run the vine through the top of the humid vegetative mass at the bottom of the tutor. Where the vine comes through the rotting vegetative bass, it will start upward again. At the point where it goes through the vegetative mass it will form roots and these will strengthen the plant. This re-rooting will probably not have to be done more than once.

Eventually the vine will form many loops over the branches of the tutor. None of these branches will actually touch the ground again. The coils will form what the growers call the "crown" or circular wreath of vanilla plant.

Maintenance of the plantation

After the vine has started upwards again, the grass and weeds must be cut down close up to the base of the tutor. The crass and weeds are hacked into pieces with the machete (or put through a mechanical cutter) and added to the mass of decomposing material in the center of the aisle.

Creation of compost piles

The most effective and cheapest way to feed the vanilla is to add composted soil once a week. Chemical fertilizers, even when diluted, are too strong for putting on the vanilla plant roots. Compost can be made from anything except chicken manure, which is too astringent and does not decompose well even in a well-prepared compost pile. Compost piles can contain wood, branches, leaves, cow manure, fish or animal bones, and even small amounts of ashes from fires. They should be at least a meter high, preferably higher, so the heat inside the pile will kill the weed seeds and form compost faster. Every month the compost pile should be turned. In the rainy season it should be covered with a tarp and staked at the edges to keep in the heat that aids the decomposition. Earthworms may be added as may other biological agents that rush the composting, but if the pile is high enough it will decompose naturally. When the compost pile has become a rich black soil, filled with earth worms, it is ready for putting in a cart and taking to the field to spread at the base of each vanilla plant.

The mounds of compost at the base of each tutor with its vanilla plant should be kept 40-50 cm high. This is the food that the shallow vanilla vine roots use for sustenance.

Harvesting the Flemingia

A year after sewing the Flemingea seed, it can be cut down to 3-4 cm from the soil and hacked into small 10cñ bits (A mechanical chopper helps to do this job easier.) All of the bits of chopped Flemingea should be added either to the compost piles beyond the plantation or in the middle between the rows where grass and Gliricidia leaves are left to compost. This contributes leguminous matter to the compost. The Flemingea, once dry can be piled still higher to hasten the formation of compost. When it is sufficiently decomposed it can be added to the base of the tutor tree.

Pruning the Gliricidia sepium tutor tree

The Gliricida must be pruned progressively, particularly in the rainy season. It is during this time that the shade should be reduced to give more light to the vanilla plant. Pruning during the raining season will prevent attacks of fungus.

Clearing the drains

Every year at the end of the dry season the decaying matter should be carefully removed from the top of the vanilla plant roots. The drainage channels should be cleared of earth

and put on the roots, and then the compost heaped back on top of the top of the fresh soil. Alternatively, the earth can be thrown into the mounded decaying matter between the rows, and will become part of the decaying matter that is later added to the base of the vanilla.

Pruning to encourage flowering

A vine that is four or five years old will begin to naturally divide and form various branches. When there are several descending vines, flowering can be encouraged by breaking off the ends of 3-5 of these fines 20 cm from the ground. Effectively this will encourage flowering. It also breaks the loops, as does cutting off of sections for use in the formation of new vanilla plantations.

Limiting the number of inflorescences

The larger vanilla plants or "crowns" may produce more inflorescences or flower racemes than are good for the plant. Limit the number of inflorescences to just 3 on each hanging vine end, and cut the others off. Keep 8-15 inflorescences per large plant, according to the vigor of the vanilla vine. If this is carefully monitored, the vanilla will remain in production up to twelve years.

Fecundation—pollination

The vanilla flower is self-fertile, but is prevented from actually fertilizing itself by a protruding tongue, called the rostellum, which intrudes between the female and male parts of the flower. The flowers bloom only once, for one day, and by 1 pm the pollen has lost its ability to attach to the stigma. Therefore all pollination must be down from 6 am to 1 pm.

Taking the flower in the hand, tear off the lower lip petal of the orchid and using a sharp pointed stick or piece of sharpened bamboo, push the rostellum out of the way, and using the thumb, press the pollen mass in contact with the stigma. (See photos)

Women are particularly good at the pollinating because they have quick agile fingers. The pollination takes place over a month—since the blooms open one by one on successive days. Not all of the blooms should be pollinated. In fact, a sweep through the vanillery can be made very other day. But, it is important to try to pollinate the largest flowers, for they will produce the largest vanilla beans.

It will be easy to tell if the pollination was done correctly. By the next day an unpollinated flower will shrivel up and drop off. Those that have been pollinated will stay in place at the end of the bean that will form and remain at the end of the bean for more than a month before they drop off. When the flowers drop off, the bean is at its probably full length.

The women keep the bottom lip petals in their aprons or a basket, because on the commercial plantations they are paid by the number of flowers that they pollinate each day.

Thinning out the vanilla pods

Two months from pollination the clusters of vanilla beans are inspected and the small beans, the curved beans and the damaged beans broken off and eliminated. A small twist on the peduncle end will quickly detach these inferior beans. Removing them will favor the development of the longer pods and make more money for the farmer. A normal plant should not carry more than 100-120 beans on the total of from 8-15 inflorescences. There are of course some plants that can carry twice or three times this much production with ease. (Photo)

Development of the Beans

By the time that the flowers have dropped off the beans they are about at their full length, but the aroma enzymes have not even begun to develop. The vanilla pods will be dark green and actually at their fattest and fullest after two months. Over the next seven months, until they are about 9 months old, they will lose a bit of weight but remain in a fairly similar state from month to month. Finally they begin to turn yellow at the bottom end. This indicates that the enzymes have developed. The picking will take place just before the beans become completely yellow or turn brown. The slightly premature harvest is done in anticipation that if left on the vine later, they will split and the miniature seeds fall out.

One of the problems in many vanilla countries is that the beans are harvested after only six months or seven months and never, even with good curing methods, develop much flavor or aroma. These are inferior beans. The reason that some of the farmers in other countries pick early is that they are afraid that their beans will be stolen.

Branding

In areas where the beans might be stolen, the beans vanilla pods are branded with a device that makes pin-pricks in the vanilla bean near the stem end. This is done after about 8 months—a month before harvest. The brand extends 2 cm along the bean near the stem end and is about 4 mm high. The letters or numbers are 1.5 mm apart. A combination of up to 4 letters or numbers is used to identify the farmer who owns the beans.

Harvest

Immature beans are dark green. Nearing harvest time the beans become a lighter more brilliant green. On Mature Beans the end or head of the bean turns yellow as do the two veins that are on either side of the bean. Overripe beans have brown heads or hooks. Split beans are brown and start to split longitudinally. The harvest is done when the beans are in the Mature Bean stage only.

Since the flowers were pollinated one by one, the beans in each cluster also reach harvest stage one by one. Though some lazy farmers tear off the whole clump, this is not the correct way to harvest. When it is done this way, some of the beans are ripe but some are still dark green and immature—and these beans are classified as inferior and get a much lower price. (photo)

Method of picking the vanilla pods

A simple twist of the peduncle will separate the bean from the stalk without hurting the rest of the beans in the cluster. Damaging the pen uncle should be avoided as this also produces a bean that is of poor quality and will be classified apart and be paid less money.

Also avoid breaking or cutting off the stem end in harvest. This bean is then classified as a "cut", a much inferior grade of bean.

Transport

The beans are transported in baskets to the village.

Sorting

The Mature green vanilla beans must be sorted. The shorts (less than 14 cm) are separated into piles: The dark green immature beans are set aside because they are of a poorer quality and must be scalded at a different temperature for a different length of time. The "cuts", beans with an end cut off, are also put into another pile.

At this point the farmer has two options. He can immediately take the harvested beans to the processing/curing center and sell the beans to the center (or a middle man buyer) each day or every other day during the month and a half of harvest.

The more experienced vanilla farmers do not like to sell the green beans to middlemen or to the processing curing centers every day. This means daily trips back and forth to the collection centers or problems with negotiation on price with the collectors or middlemen. They prefer to treat the beans in their village so that they can be transported (or sold) at a later date—selling the beans from the whole crop all at one time and negotiating a higher price. He can do this if he works with his neighbors to get enough volume to justify doing the next stage of "pre-processing".

If this second option is chosen, he or she can, with the neighboring vanilla growers in the village, start the beginning process of bean processing. This will take three months (the remaining three months of the calendar year from the date the vanilla flowers were fecundated.) This "pre-processing" will bring the beans to the stage where they can be stored for a period of time—even held at the farmer's home like money in the bank.

Whether the farmer starts the process, or the processing-export center starts the processing, the methodology is the same. The beans are first scalded, then sweated in wooden chests, then sun cured, then cured on racks in the shade, then stored in boxes until the exquisite vanilla flavors develop and the beans are black, glossy and flexible and no longer subject to mold.

The material for scalding

A tall basket with two handles, somewhat smaller than the diameter of a 50-gallon oil drum will be used to hold the beans. A fifty-gallon oil drum will hold the water. A station for heating the water in the 50-gallon drum that uses fuel oil or butane gas or

firewood (though the last option is not good because it uses up the forest around the village.) A  is important to test the temperature of the water.  A chronometer or timer for measuring how many minutes the beans have been submerged in the scalding water.  A forked stick to push the floating beans back down into the water.

Scalding

A few days (4-5 days are fine) can pass between the picking of the vanilla beans and the scalding.  This will allow the formation of a protective scar tissue on the stem end where it was twisted from the bean cluster on the plant.

Scalding the mature beans

The water in the 50-gallon drum is heated to 70 degrees Centigrade (as measured with the thermometer).  The basket with the sorted green beans (starting with the long grade beans first) are lowered into the cauldron.  Immediately the basket is lifted then plunged downwards again to agitate the water and get a better circulation of the steaming water among the means.  The basket of beans is left in the water for 3 minutes—using the forked stick to keep submerging the floating beans back down into the water.  When 3 minutes is up (as measured with the chronometer)  the basket is pulled out of the water, and the water pours out the holes and back into the 50-gallon drum.  The basket is then taken and dumped into the sweating box—and the basket is then filled with the next lot of beans and the process of scalding continues.

Scalding the immature beans

The same scalding process is followed as above, but the water temperature is reduced to only 60 degrees Centigrade and the scalding time is reduced to 2 to 2.5 minutes.

Criteria for successful scalding

The beans are well scalded when they are supple and slippery at the stem peduncle end. If they are not scalded sufficiently they are breakable.  If they are over-scalded, the skin at the peduncle end frays and looks like rough tree bark.

Sweating

As soon as the beans have been scalded they are put through a process like a Turkish bath.  They are dumped from the scalding basket into a wooden crate 1 meter x 1 meter x 1 meter. The bottom slats of the sweating box are separated by 1-2 cm in order to allow the water left on the beans to drain out the bottom. The bottom of the sweating box is elevated on little blocks or feet 2-4 cm so that there will be a space below the box so that the water can run out.

This sweating box is lined with 4 layers of blankets that extend up over the sides of the box.  These should be very clean blankets to prevent contamination of the hot vanilla beans with any mold.  The hot beans are put in the box immediately after being scalded. They should not cool.

When adding beans of different qualities to the box, the beans should be wrapped in separate blankets so that the beans will not get mixed up. Finally in the box you will have all mature beans, or possibly three different qualities. Long, short and immature beans may coexist in this sweating box as long as they are separated by blankets. Cover the box with the blankets hanging over the side and add more blankets and leave 24 hours or until there is sunny weather. But the beans should never be left in the box more than 3 days even if it is raining.

When the beans are taken out of the box they will be the color of dark bitter chocolate, almost black. They will still be plump and filled with moisture and that moisture must be removed. If removed to slowly, white molds may form on the outside of the black beans. If they are dried to fast, then the enzymatic action will not have enough time to take place. Dried too much and they turn from black to reddish. These beans are no longer gourmet beans, and are now of inferior quality. Though their price will be less, they are ideal for making vanilla extract

Sun patio heating

Spread the beans out on clean blankets in one layer so that they do not touch. The blankets are placed on racks in the sunshine. The beans should not touch the racks at this point when they are still fat with moisture. These racks are constructed of a wood frame with either split bamboo or wire mesh. The racks are raised above the patio on feet or boxes that lift them a meter above the ground or floor of the sunning patio. The racks can be picked up and transported.

The beans at this stage now are almost black. They are taken from the sweating box and put out in the sun anytime from 10 AM until 3 PM to re-heat them. As the sunshine raises the temperature of the beans, they are watched carefully and turned to get them evenly warmed. Heating beyond 54 degrees Centigrade is not necessary as the enzymatic action inside the beans stops abruptly at that temperature. This is best judged by touching the beans with the hands.

If the weather brings a sudden rain squall, everyone will rush to wrap up the beans in the blankets and carry them inside. If there is a big rush the racks themselves can be rushed inside. The beans should not get wet and cool off.

End of sun drying for the day

After 2-3 hours of sun, wrap the beans in blankets into packages and leave the packages in the sun for another hour—turning the blankets at least once. Then take the bundles into the warehouse shade and pile them all up in a pyramid. Cover the pyramid of bundles of beans wrapped in blankets with plastic sheet to keep them warm. The beans will rest here over night in the piles.

The sun yard curing process will be repeated daily for two to three weeks.

During this time the color of the beans must be examined carefully in the sunlight. Each day there will be a few beans that must be removed because they have gotten too dry in the sun.

Selection

Each day while in the sun, the beans are sorted. The "sun dried" beans that have dried too rapidly must be removed. These are usually short or split beans. They are skinny, and supple and if rolled between the thumb and forefinger, feel like they have wrinkles inside the bean as the outside skin surface moves over the center core.

Follow-up for "sun-dried" beans

The sun dried beans are taken into the warehouse and dried on the screen trays in the dark. The screens can be stacked. The beans however should be head to toe and not touch each other. They are will wait there as the other beans that are still going through the sun patio drying process are being finished.

The other beans in the sun yard are watched carefully to see if they are beginning to look wrinkled or creased. By now these wizened beans should be quite flexible and supple. They can be tested by rolling the between the fingers and around the index finger to see if they have had enough sun.

Drying on racks in the shade

Arranged on screen racks in rows "head to head" the drying in the shade on racks lasts from two weeks to a month. You can stop the shade drying when you can roll the bean between the fingers and there is no longer the feeling that the bean has wrinkles inside and you cannot feel a roll underneath the outer surface of the bean and the inner substance.

Categories of vanilla

As the beans are dried, they are taken from the racks and sorted into categories. These categories include long black not split, long black split, red not split, red split and beans with cut ends or defects.

The beans with cut ends are considered inferior because they may hide another problem. If the beans got moldy along the way, the peasants may try to reheat them in hot water which takes the mold off of everything but the ends of the beans, and then cut off the ends. Finding beans without there "hook" at the ends may indicate that the beans once had mold and were reprocessed to try to hide this terrible problem. If they are used they may contaminate many bundles of good beans. (photo).

Once they are sorted into the five major categories they are piled by category into boxes. These are smaller wooden boxes than the sweating box. The boxes have no slits in the bottom and no feet. The boxes measure 45 cm wide by 40 cm high by 60 cm long. They are lined with paraffin paper, and once full of beans, the paraffin paper is brought up, the beans covered, and a lid put on the box. They are left in the back of the warehouse to age. This is called putting the vanilla "in bulk in trunks". These loose beans are aged in the boxes for a month or until the beans are dry, with shiny exteriors.

Making bunches

When the beans are dried and placed "in bulk in trunks", they are taken out and bundled by categories and by length and tied with string or raffia—but not too tightly. There will be 80 to 100 beans in the bundle. These beans are put back in the boxes with paraffin paper covering them and the lids again closed and they will continue to dry.

Inspection of the bunches

The boxes must be opened and each buch inspected one to two times a week. At first two times a week and then just once a week. The objective is to sniff deeply into each bunch and search for bad beans that can contaminate the other and remove them.

Removal of the fermented beans

The fermented beans can be recognized by their acid, disagreeable odor. These beans must be pulled from the bundles so that they cannot contaminate the others. Beans with white mold spots black streaks are removed as well, even if they do not seem to smell disagreeable just yet. (photo)

At this points the beans will have bean cultivated and harvested after 9 months then semi-prepared until they are dried. This "semi-preparation" work can be done by the farmer qnd takes three months. But then, pollination in the vanillery starts again, so the farmer usually sells the "semi-prepared beans in the five major categories to the processing-exporting houses in order to have time to pollinate.

The Transformation and Export Center.

The transformation center does the final sorting, sizing and aging according to the needs of each foreign client. This large center may be both processing green beans and taking them through the pre-processing stage of three months already described, or they may be buying already pre-processed beans. From this point on the beans will be aged another three months to arrive at the state where they can be transported safely by sea, without further sniffing and inspection and they will be safe.

The total growing time to harvest is 9 months. Semi-preparation or pre-processing takes 3 months as described. The final transformation and again takes three months. So it takes over 160 manipulations and six months to process the green beans.

Once processed, the beans can be held several years if inspected monthly. But the market since 1998 has been so tight that all beans have gone directly to the major markets in Europe or the United States. Since there are no longer any buffer stocks, the price varies greatly.

In 2002 the great shortages caused the price to rise not only week to week but even day to day. The Malagasy sales season started in August with green beans at under $20.00 but by December the price was over $120 kg. Cases of murder to steal beans caused panic. A warehouse was broken into and a reported 10 tons stolen, then the same beans sold back to the same warehouse owner for a 15% premium on the price. The farmers now are very aware of the price changes because they all carry cell phones and talk to

each other daily. But in years when there are ample beans to sell, the price will remain stable. 2002 was an exceptional year. 2003 will be a tight market as well as the vanilla plants will be in a year of "off production" which happens every three or four years. After 2004 the prices will settle down as new production comes on stream. Then the price will be regulated by international supply and demand. Gourmet beans will continue to be scarce world wide for the next decade as the market demand for this category is expanding throughout the world.